

Subject: INFORMATION: Policy regarding open holes in primary fuselage structure. Ref. Detroit FSDO Recommendation for Accident Prevention 90-203.

Date: JUN - 9 1992

From: Acting Manager, Transport Airplane Directorate,
Aircraft Certification Service, ANM-100

To: Manager, Aircraft Maintenance Division, AFS-300

We agree with the Detroit FSDO that indiscriminate drilling of holes in fuselage frames can create a potential safety problem. We do not believe however, that it is necessary to issue Airworthiness Directives against all transport category cargo airplanes in order to correct this problem.

It would-be useful in spreading the word to the PMIs and operators if Flight Standards issued a "Notice" or EMAIL message expressing our concerns. We suggest that AFS-300 send the attached draft message to all PMIs.

Signed by Bill R Backwell
For
Darrell Pederson

Attachment 1

Memorandum

U.S. Department of Transportation
Federal Aviation Administration

Subject: INFORMATION: Policy regarding open drill holes in primary fuselage structure. Ref. Detroit FSDO - Recommendation for Accident Prevention 90-203.

From: Manager, Transport Airplane Directorate,
Aircraft Certification Service, ANM-100

To: Managers, ACE-100, ASW-100, ANE-100, AIR-100, AFS-100

It was brought to our attention by the Detroit FSDO that some of the older transport category airplanes operating in the all cargo configuration have received extensive damage to the fuselage frames by maintenance personnel during modifications and repairs. The problem is in drilling excessive holes in the circumferential frames to attach cargo liners. In one instance an L-188 airplane had a number of large holes drilled in both the web and flange of the frames. These extra holes were not used to attach anything. It was obvious from the number, size, and location of the holes that the static strength of the frame was affected. The critical areas of the typical fuselage frame are the flanges, sections near cutouts for stringers

and sections adjacent to window and door cutouts. Holes can also create long-term fatigue problems if they are located in high stress areas, especially if they are unplugged.

Any transport cargo airplane undergoing structural modifications in and around the cargo compartments should be inspected for holes in the fuselage frames. Holes that lower the static strength of the frames below the original type design should be repaired. The structural repair manual (SRM) should provide guidance in determining when a repair is necessary. The corrosion and crack limits defined in the SRM could be compared to the net section removed by drill holes. The frame should be repaired when the net section removed by the drill holes exceeds the damage allowed by the SRM.

The assigned Principal Maintenance Inspectors (PMI) should be aware of this potential safety problem and should take all necessary corrective action. Applicants seeking to modify the fuselage in or around the cargo compartments should also be made aware of these concerns. The inspectors should inform the appropriate ACO of any unsafe condition and when warranted, the ACO should issue an airworthiness directive (AD) against a particular airplane type design.